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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/511,125	WRIGHT ET AL.
Office Action Summary	Examiner	Art Unit	
	DISLER PAUL	2615	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-32_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some * c)☐ None of:

         1.☒ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite

and ambiguous wherein the applicant failed to disclose the subject matter claims.

Re claim 22, wherein "the noise control system according to claim 7, *which*

produce acoustic shadow" is ambiguous/confusing.

For art rejection Re claim 22 will be read as: "the primary sound produce acoustic

shadow".

3.   Claims 20, 26, 30 recite the limitations of "the combined sound directivity" and

"the geometry in the system" and "the C filter" in therein respectively. There are

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the
> United States before the invention thereof by the applicant for patent, or on an international application
> by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this
> title before the invention thereof by the applicant for patent.

Claims 7-9, 14-15, 32 are rejected under 35 U.S.C. 102(e) as being anticipated

by Zhang et al. (US 6,847,721 B2).

Re claim 32, Zhang et al. disclose of the method of controlling a

noise, comprising the steps of: detecting the noise and providing an

output signal indicative of the noise; producing a secondary sound

usable to cancel the primary noise (fig.1-3; col.3 lien 40-65);

calculating a negative substantial copy of the said output signal and

using the calculated negative substantial copy to produce an

adjustment signal ; and using the adjustment signal to produce the

secondary sound (fig.1-3; col.4 line 20-45/to cancel the noise with

adaptive filters to change).

Re claim 7, Zhang et al. disclose of the noise control system

comprising: a primary sensor means arranged to detect a primary sound

from a primary source and provide an output signal indicative of the

primary sound (fig.1,3 (52)); a sound producing means arranged to

produce a secondary sound usable to cancel the primary sound; a signal

processing means arranged to receive the said output signal, calculate

a negative substantial copy of the output signal and use the

calculated negative substantial copy to produce an adjustment signal

to be received by the sound producing means and used to produce the

secondary sound (fig.1 wt (6,11); fig.3 wt (3,52); col.4 line 18-30).

Re claim 8, the noise control system according to claim 7, wherein
production of the adjustment signal compensates for control system
distortion (col.2 line 30-45 & 60-65).

Re claim 9, the noise control system according to claim 8, wherein the
compensation is carried out by any or all of: (i) physically altering
the dynamic response of the sound producing means, and passing the
signal through the control system inverse (fig.1 wt (11); col.4 line
20-30/error cancelling at output transducer).

Re claim 14, the noise control system according to claims 7, further
comprising an error sensor means arranged to sense a difference
between the primary and secondary sounds and provide an error signal
indicative of the said difference (fig.1 wt (11)).

Re claim 15, the noise control system according to claim 14, wherein
the signal processing means is arranged to receive the error signal
for use in production of the adjustment signal (col.3 line 55-63).

Claims 32, 7-11, 14-18, 22-27 are rejected under 35 U.S.C. 102(b) as being anticipated

by Branislav et al. (WO 01/63594 A2).

Re claim 32, Branislav et al. disclose of the method of controlling a
noise, comprising the steps of: detecting the noise and providing an
output signal indicative of the noise; producing a secondary sound
usable to cancel the primary noise (fig.3; page 3 line 25-30);
calculating a negative substantial copy of the said output signal and
using the calculated negative substantial copy to produce an
adjustment signal ; and using the adjustment signal to produce the
secondary sound (fig.3; page 3 line 25-30; page 5 lien 15-30).

Re claim 7, Branislav et al. disclose of the noise control system
comprising: a primary sensor means arranged to detect a primary sound
from a primary source and provide an output signal indicative of the
primary sound; a sound producing means arranged to produce a secondary
sound usable to cancel the primary sound; a signal processing means
arranged to receive the said output signal, calculate a negative
substantial copy of the output signal and use the calculated negative
substantial copy to produce an adjustment signal to be received by the
sound producing means and used to produce the secondary sound (see
claim 32 rejection).

Re claim 8, the noise control system according to claim 7, wherein
production of the adjustment signal compensates for control system
distortion (fig.1, 3/noise control).

Re claim 9, the noise control system according to claim 8, wherein the compensation is carried out by any or all of: (i) physically altering the dynamic response of the sound producing means, and passing the signal through the control system inverse (page 17 line 1-20).

Re claim 10, the noise control system according to claims 8, wherein a control system inverse is used to compensate for control system distortion and is obtained in series with the control system using a training signal derived from noise signal and wherein such noise being a white noise or a periodic pulse train (page 17 line 25-32).

Re claim 11, the noise control system according to claim 10, wherein the control system is a non-minimum phase function and a convergence delay is used in parallel with the control system and a training FIR filter to cause convergence of the training process (fig.3; page 8 line 15-26; page 9 line 14-25/sample with filter to compensate).

Re claim 14, the noise control system according to claims 7, further comprising an error sensor means arranged to sense a difference between the primary and secondary sounds and provide an error signal indicative of the said difference (fig.3).

Re claim 15, the noise control system according to claim 14, wherein

the signal processing means is arranged to receive the error signal

for use in production of the adjustment signal (fig.3).

Re claim 16, the noise control system according to claims 7, wherein

the sound producing means and having primary source and specific

herein the sound producing means is disposed at a predetermined

distance relative to the primary source such that sound takes a

predetermined time to travel between the primary source and the sound

producing means, and the signal processing means is arranged to use

the predetermined distance to calculate the adjustment signal (page 17

line 1-15).

18. A noise control system according to claim 11, wherein there is a

secondary signal processing sample delay associated with the sound

producing means, which is useable to set a minimum predetermined

distance and, which is offset by a signal advance, produced by

positioning the sound producing means downstream of the primary source

until the secondary sound is slightly in advance of the primary sound;

wherein a dominant component of the signal processing sample delay is

the said convergence delay (fig.3; page 8 line 15-26; page 9 line 14-

28; page 13 line 22-30/na-delay to compensate for distance).

Re claim 17 has been analyzed and rejected with respect to claim 18.

Re claim 22, the noise control system according to claims 7, which
produces acoustic shadows that are rotatable from a line joining the
primary source and the sound producing means, the rotation angle
depending on one or more of: a secondary signal processing sample
delay change; a primary sound sampling frequency; a distance between
the primary source and the sound producing means; and the speed of
sound (fig.1; page 17 line 1-15).

Re claim 23, the noise control system according to claims 7 with
primary and secondary sound and further comprising one or more further
primary sensor means and one or more further sound producing means,
arranged generally in successive alignment planes or arcs from the
primary source and contained within shadow control angles (fig.1 wt
(2,3)).

Re claim 24, the noise control system according to claim 23, wherein
the shadow control angles extend vertically and horizontally (fig.3).

Re claim 25, the noise control system according to claim 23, further
comprising one or more error sensor means arranged in the said
successive alignment planes or arcs (see claim 23).

Re claim 26, the noise control system according to claim 25 wherein a
geometry of the system is adjusted by varying: the number of sound

producing means (fig.1 wt (2)/sound producing) and the so as to

avoiding the path differences between the sound producing means and

the error sensing means over the operating frequency range being one

or a multiple of the acoustic half wavelength of the sound producing

means (page 21 line 15-33).

Re claim 27, the noise control system according to claim 25, and

further disclose of the wherein each primary sensor means together with

a respective sound producing means and error sensing means forms an

independent channel, and each sound producing means is individually

adjusted to minimise error at its respective error sensing means

(fig.1 wt (3; channels)).

5.   Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Branislav et al. (WO 01/63594 A2) and Kakuhari et al. (US 7,191,022 B1).

Re claim 20, Branislav et al. disclose of the noise control system

according to claims 7, wherein the primary sound and the secondary

sound and the sound directivity is controlled by adjustment of

distance between the primary and secondary sound (page 15 line 25-33).

But, Branislav et al fail to disclose wherein the sounds form a phase

controlled dipole for sound directivity. But, Kakuhari et al. disclose

of a system wherein the sounds form a phase controlled dipole for

sound directivity (fig.16,19,20,28; col.3 line 5-30) for purpose of

obtaining a narrow directionality pattern. Thus, taking the combined

teaching of **Branislav et al** and Kakuhari et al. as a whole, it would have

been obvious for one of the ordinary skill in the art to have modified

Zhang et al. with the sounds form a phase controlled dipole for sound

directivity for purpose of obtaining a narrow directionality pattern.

Re claim 21, the combined teaching of **Branislav et al.** and Kakuhari et

al. as a whole, teach of the noise control system according to claim

20 with the primary sound and secondary sound cancelling each other,

and the specific wherein the propagation distances of the primary and

secondary sounds are substantially identical such that the secondary

sound is substantially completely aligned at all points along the

primary sound, and thus produces a uniform shadow along the primary

sound (Bra,fig.1 wt (1,2); page 2 line 14-30).

6.   Claims 1-6, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over (

Zhang et al. (US 6,847,721 B2) or Branislav et al. (WO 01/63594 A2))

and further in view of Kobayashi (5,544,080).

Re claim 1, (Zhang et al. or Branislav et al.) disclose of the

primary sensor means arranged to detect a primary sound from a

primary source and provide a first output signal indicative of the

primary sound, which output signal has a frequency spectrum; a sound

producing means arranged to produce a secondary sound usable to cancel

the primary sound; an error sensor means arranged to sense a

difference between the primary and secondary sounds and provide a

second output signal indicative of the said difference (fig.1 wt

(6,11); fig.3;col.3 line 30-51; col.5 line 5-12) a signal processing

means arranged to receive and process the first and second outputs to

produce a third output to be received by the sound producing means and

used to produce the said secondary sound (fig.1 wt (11,6); fig.3/with

third output produce based on first and second output signal) or

(Branislav, fig.1,3 wt (3); col.3 line 22-30; col.1 line 5-17).

        But, (Zhang et or Branislav et al.) fail to disclose of the

specific wherein the spectrum output from said primary sensor means is

arranged to be divided into a plurality of frequency pass-bands, each

frequency pass-band being arranged to feed a finite impulse response

filter using an adaptive algorithm acting on the second output signal,

and wherein each finite impulse response filter is arranged to produce

an output signal, which output signals are combinable to produce said

third output signal. But, Kobayashi et al. disclose of a system

wherein similar concept of spectrum output from said primary sensor

means is arranged to be divided into a plurality of frequency pass-

bands, each frequency pass-band being arranged to feed a finite

impulse response filter using an adaptive algorithm acting on the

second output signal, and wherein each finite impulse response filter

is arranged to produce an output signal, which output signals are

combinable to produce the said third output signal (fig.2 ; col.27

line 35-35; col.10 line 30-59; fig.3; col.21 line 25-40; col.12 line

55-67/many filters including pass band) for purpose of enhancing the

converging speed of control noise. thus, taking the combined teaching

of (Zhang et or Branislav et al.) and Kobayashi as a whole, it would

have been obvious for one of the ordinary skill in the art to have

modify (Zhang et or Branislav et al.) with the spectrum output from

said primary sensor means is arranged to be divided into a plurality

of frequency pass-bands, each frequency pass-band being arranged to

feed a finite impulse response filter using an adaptive algorithm

acting on the second output signal, and wherein each finite impulse

response filter is arranged to produce an output signal, which output

signals are combinable to produce the said third output signal for

purpose of enhancing the converging speed of control noise.

Re claim 2, the noise control system according to claim 1, wherein the

adaptive algorithm acting on the second output signal is a least mean

squared algorithm or equivalent (ko, col.10 line 36-43).

Re claim 6, the noise control system according to claim 1, the

combined teaching of Zhang and Kobayashi as a whole, teach of the

wherein the adaptive algorithm comprises a control system estimate

(ko, col.10 line 30-50).

Re claim 31, which is a broader claim version of claim 1 has been

analyzed and rejected accordingly.

Re claim 3, the noise control system according to claim 1, wherein the
sound producing means is arranged to adapt the secondary sound to the
primary sound with adaptive filter based on amplitude and phase of
transfer function with adaptive filter(see claim 1). But, the combined
teaching of Zhang and Kobayashi as a whole, fail to disclose of the
specific wherein adapting the sound in a step-wise fashion having an
adaptive step size adjusted proportional to the square of the
amplitude of each pass-band filter. But, official notice is taken the
concept of specifically adapting the sound in a step-wise fashion
having an adaptive step size adjusted proportional to the square of
the amplitude of each filter is simply the user's preference. Thus, it
would have been obvious for one of the ordinary skill in the art to
have modify the combined teaching of Zhang and Kobayashi as a whole,
with such adaptive coefficient filters being specifically of the step-
wise fashion having an adaptive step size adjusted proportional to the
square of the amplitude of each pass-band filter to enhance the
converging speed of the control signal.

Re claim 4, the noise control signal system according to claim 1,
wherein the sound producing means is arranged to modify the secondary
sound based on first output signal and further wherein the combined
teaching of Zhang and Kobayashi as a whole, further teach of
modification of the second output signal is substantially minimized
within each pass-band, thus tending to maximize the speed of

modification of the secondary sound evenly across the frequency
spectrum of the first output signal (ko, col.3 line 20-39; col.5 line
1-11/filter to minimize error).

Re claim 5, the noise control system according to claim 4 with
modification of secondary sound with first with the primary sound, but
the combined teaching of Zhang and Kobayashi as a whole, fail to
disclose of the speed modification of the secondary sound is
substantially constant with the amplitude of the primary sound.
However, official notice is taken the concept of modifying a secondary
sound is substantially constant with the amplitude of a primary sound
is well known in the art. Thus it would have been obvious for one of
the ordinary skill in the art to have modify combined teaching of
Zhang and Kobayashi as a whole, such that specifically a secondary
sound is substantially constant with the amplitude of a primary sound
for improving the active noise cancellation system.

7.   Claim15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et

al. (US 6,847,721 B2).

Re claim 10, the noise control system according to claims 8, wherein a
control system inverse is used to compensate for control system
distortion and is obtained in series with the control system using a
training signal derived from noise signal (fig.1 (12,6)/to produce

cancelling copy signal). But, Zhang fail to disclose of the specific
wherein such noise being a white noise or a periodic pulse train. But,
official notice is taken the concept of having a training signal being
the specific of the white noise or a periodic pulse train is well
known in the art, thus it would have been obvious for one of the
ordinary skill in the art to have modify Zhang et al. with the
specific of the white noise or a periodic pulse train for obtaining
training sample signals for cancelling noise input.

7.   Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et
al. (US 6,847,721 B2) and further in view of Clark Jr. et al. (US 5,848,169).

Re claim 16, the noise control system according to claims 7, wherein
the sound producing means and having primary source. But, Zhang et al.
fail to disclose of the specific herein the sound producing means is
disposed at a predetermined distance relative to the primary source
such that sound takes a predetermined time to travel between the
primary source and the sound producing means, and the signal
processing means is arranged to use the predetermined distance to
calculate the adjustment signal.   But, Clark et al. disclose of a
sound system wherein the specific herein the sound producing means is
disposed at a predetermined distance relative to the primary source
such that sound takes a predetermined time to travel between the
primary source and the sound producing means, and the signal

processing means is arranged to use the predetermined distance to

calculate the adjustment signal ((fig.6a,6b); col.3 line 50-57) for

purpose of increasing the robustness of the system while also

extending the bandwidth of operation and degree of attenuation.

Thus, taking the combined teaching of Zhang et al. and Clark et

al. as a whole, it would have been obvious for one of the

ordinary skill in the art to have modify Zhang et al. with the

specific herein the sound producing means is disposed at a

predetermined distance relative to the primary source such that sound

takes a predetermined time to travel between the primary source and

the sound producing means, and the signal processing means is arranged

to use the predetermined distance to calculate the adjustment signal

for purpose of increasing the robustness of the system while also

extending the bandwidth of operation and degree of attenuation.

8.   Claims 12-13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable

over (Zhang et al. (US 6,847,721 B2) or Branislav et al. (WO 01/63594 A2)) and further

in view of Todter et al. (US 5,937,070).

Re claim 12, the noise control system according to claims 8, wherein

in order to compensate for control system distortion. But, (Zhang et

al. or Branislav et al.) fail to disclose of the spectrum amplitude of

a control system impulse response is obtained and inverted, a phase of

the control system impulse response is obtained and phase negated.

But, Todter et al. disclose of a noise distortion wherein the similar

concept of a spectrum amplitude of a control system impulse response

is obtained and inverted, a phase of the control system impulse

response is obtained and phase negated (fig.6 wt (3,8); col.13 line

50-62/phase and gain adjustment in cancelling) for purpose of

obtaining effective/accurate noise cancellation. Thus, taking the

combined teaching of (Zhang et or Branislav et al.) and Todter et al.

as a whole, it would have been obvious for one of the ordinary skill

in the art to have modify Zhang et al. with such similar concept of a

spectrum amplitude of a control system impulse response is obtained

and inverted, a phase of the control system impulse response is

obtained and phase negated for purpose of obtaining effective/accurate

noise cancellation.

While, the combined teaching of (Zhang et or Branislav et al.). and

Todter et al. as a whole, fail to disclose of the inverted amplitude

and negated phase are reassembled as a time domain inverse function.

But, official notice is taken such concept of having a sound

cancellation system wherein the inverted amplitude and negated phase

are reassembled as a time domain inverse function is well known in the

art. Thus, it would have been obvious for one of the ordinary skill in

the art to have modify Zhang et al. with such inverted amplitude and

negated phase are reassembled as a time domain inverse function to

outputting the original sound signal.

  Re claim 13, the noise control system according to claim 12, But, the

combined teaching of (Zhang et or Branislav et al.)and Todter et al.

as a whole, fail to disclose of the wherein the inversion and negation

is carried out using a Fast Fourier Transform and the reassembly is

carried out using an inverse Fast Fourier Transform. But, official

notice is taken such concept of having a sound cancellation system the

wherein the inversion and negation is carried out using a Fast Fourier

Transform and the reassembly is carried out using an inverse Fast

Fourier Transform is well known in the art. Thus, it would have been

obvious for one of the ordinary skill in the art to have modify (Zhang

et or Branislav et al.) the wherein the inversion and negation is

carried out using a Fast Fourier Transform and the reassembly is

carried out using an inverse Fast Fourier Transform to outputting the

original sound signal.

Re claim 19, the noise control system according to claims 7, But,

(Zhang et al. or Branislav et al.) fail to disclose of the wherein the

secondary sound is substantially aligned and matched in amplitude with

the primary sound by means of an adjustable circular buffer sample

delay number and an amplitude adjuster, through successive adjustment.

But, Todter et al. disclose of a noise cancelling system wherein a

secondary sound is substantially aligned and matched in amplitude with

the primary sound by means of an adjustable buffer sample delay number

and an amplitude adjuster, through some adjustment (fig.6 wt (3,8);

col.13 line 50-62/phase and gain adjustment in cancelling) for purpose

of obtaining effective/accurate noise cancellation. Thus, taking the

combined teaching of (Zhang et al. or Branislav et al.) and Todter et

al. as a whole, it would have been obvious for one of the ordinary

skill in the art to have modify Zhang et al. with a secondary sound is

substantially aligned and matched in amplitude with the primary sound

by means of an adjustable buffer sample delay number and an amplitude

adjuster, through some adjustment for purpose of obtaining

effective/accurate noise cancellation.

But, the combined teaching of (Zhang et al. or Branislav et al.) and

Todter et al. as a whole, failed to disclose of the delay being a

circular buffer sample. But, official notice is taken the concept of

having such delay as a circular buffer sample is simply the inventor's

preference, thus it would have been obvious for one of the ordinary

skill in the art to have modify the combined teaching of Zhang et al.

and Todter et al. as a whole, with the delay being a circular buffer

sample for obtaining the anti-signal cancelling signal.

9.   Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et

al. (US 6,847,721 B2) and Kakuhari et al. (US 7,191,022 B1) and Clark Jr. et al. (US

5,848,169).

Re claim 20, Zhang et al. disclose of the noise control system

according to claims 7, wherein the primary sound and the secondary

sound, But, Zhang et al. Fail to disclose wherein the sounds form a

phase controlled dipole for sound directivity. But, Kakuhari et al.

disclose of a system wherein the sounds form a phase controlled dipole

for sound directivity (fig.16,19,20,28; col.3 line 5-30) for purpose

of obtaining a narrow directionality pattern. Thus, taking the

combined teaching of Zhang et al. and Kakuhari et al. as a whole, it

would have been obvious for one of the ordinary skill in the art to

have modify Zhang et al. with the sounds form a phase controlled

dipole for sound directivity for purpose of obtaining a narrow

directionality pattern.

   The combined teaching of Zhang et al. and Kakuhari et al. as a

whole, fail to disclose of the combined sound directivity is

controlled by adjustment of the distance between the primary source

and the sound producing means. But, Clark et al. disclose of a sound

system wherein the specific the combined sound directivity is

controlled by adjustment of the distance between the primary source

and the sound producing means ((fig.6a,6b); col.3 line 50-57) for

purpose of increasing the robustness of the system while also

extending the bandwidth of operation and degree of attenuation.

Thus, taking the combined teaching of Zhang et al. and Kakuhari et

al. and Clark et al. as a whole, it would have been obvious for one

of the ordinary skill in the art to have modify The combined

teaching of Zhang et al. and Kakuhari et al. as a whole, the specific

the combined sound directivity is controlled by adjustment of the

distance between the primary source and the sound producing means for

purpose of increasing the robustness of the system while also

extending the bandwidth of operation and degree of attenuation.

10.   Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et

al. (US 6,847,721 B2) and Kakuhari et al. (US 7,191,022 B1) and Clark Jr. et al. (US

5,848,169) and Todter et al. (US 5,937,070).

Re claim 21, the combined teaching of Zhang et al. and Kakuhari et

al. and Clark et al. as a whole, teach of the noise control system

according to claim 20 with the primary sound and secondary sound

cancelling each other, But, they fail to disclose of the specific

wherein the propagation distances of the primary and secondary sounds

are substantially identical such that the secondary sound is

substantially completely aligned at all points along the primary

sound, and thus produces a uniform shadow along the primary sound.

But, Todter et al. disclose of a noise cancelling system wherein the

propagation distances of the first and secondary sounds are

substantially identical such that the secondary sound is substantially

completely aligned thus including the inherent of the uniform shadow

along the primary sound (fig.6 wt (3,8); col.13 line 50-62/phase and

gain adjustment in cancelling) for purpose of obtaining

effective/accurate noise cancellation. Thus, taking the combined

teaching of Zhang et al. and Kakuhari et al. and Clark et al. and

Todter et al. as a whole, it would have been obvious for one of the

ordinary skill in the art to have modify the combined teaching of

Zhang et al. and Kakuhari et al. and Clark et al. as a whole, with the

propagation distances of the first and secondary sounds are

substantially identical such that the secondary sound is substantially

completely aligned for purpose of obtaining effective/accurate noise

cancellation.

11.   Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zhang et al. (US 6,847,721 B2) and Finn (US 5,699,437).

Re claim 23, the noise control system according to claims 7 with

primary and secondary sound. But, Zhang fail to disclose of further

comprising one or more further primary sensor means and one or more

further sound producing means, arranged generally in successive

alignment planes or arcs from the primary source and contained within

shadow control angles. But, Finn disclose of a system for noise

reduction wherein further one or more further primary sensor means and

one or more further sound producing means, arranged generally in

successive alignment planes or arcs from the primary source and

contained within shadow control angles (fig.2 wt (52 - 62; 24; 76);

col.5 line 1-20 /plurality of mic and speakers transducers within from

the primary source to create quiet zone) for purpose of creating

optimum noise cancellation effect. Thus, taking the combined teaching

of Zhang et al. and Finn as a whole, it would have been obvious for

one of the ordinary skill in the art at the time of the invention to

have modify Zhang et al. with the further primary sensor means and one

or more further sound producing means, arranged generally in

successive alignment planes or arcs from the primary source and

contained within shadow control angles for purpose of creating optimum

noise cancellation effect.

Re claim 24, the noise control system according to claim 23, wherein

the shadow control angles extend vertically and horizontally (fig.2 wt

(67)/noise quiet in all area).

Re claim 25, the noise control system according to claim 23, further

comprising one or more error sensor means arranged in the said

successive alignment planes or arcs (see claim 23).

Re claim 26, the noise control system according to claim 25 wherein a

geometry of the system is adjusted by varying: the number of sound

producing means (Finn, col.4 line 1-30; col.3 line 1-45/noise

cancellation depend on the sound producing). But, the combined

teaching of Zhang et al. and Finn as a whole, fail to disclose of the

so as to avoiding the path differences between the sound producing

means and the error sensing means over the operating frequency range

being one or a multiple of the acoustic half wavelength of the sound

producing means. But, official notice is taken the concept of avoiding

the path differences between the sound producing means and the error

sensing means over the operating frequency range being one or a

multiple of the acoustic half wavelength of the sound producing means

is well known in the art. Thus, it would have been obvious for one of

the ordinary skill in the art to have modify the combined teaching of

Zhang et al. and Finn as a whole, with the avoiding the path

differences between the sound producing means and the error sensing

means over the operating frequency range being one or a multiple of

the acoustic half wavelength of the sound producing means for

producing optimum noise quiet area.

12.   Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Zhang et al. (US 6,847,721 B2) and Finn (US 5,699,437) or Branislav et al. (WO

01/63594 A2)) and Popovich (US 5,701,350).

 Re claim 27, the noise control system according to claim 25, But, the

 combined teaching of (Zhang et al. and Finn as a whole, fail to

 disclose of the wherein each primary sensor means together with a

 respective sound producing means and error sensing means forms an

 independent channel, and each sound producing means is individually

 adjusted to minimise error at its respective error sensing means. But,

 Popovich disclose of a noise cancelling system wherein each primary

sensor means together with a respective sound producing means and
error sensing means forms an independent channel, and each sound
producing means is individually adjusted to minimise error at its
respective error sensing means (fig.5; col.7 line 15-40; col.8 line
15-60/with each being respectively adjusted) for the purpose of
actively attenuate acoustic disturbance in region remote from error
sensor without the need of having similar between the regions. Thus,
taking the combined teaching of Zhang et al. and Finn and Popovich as
a whole, it would have been obvious for one of the ordinary skill in
the art to have modify the combined teaching of Zhang et al. and Finn
as a whole, with the noise cancelling system wherein each primary
sensor means together with a respective sound producing means and
error sensing means forms an independent channel, and each sound
producing means is individually adjusted to minimise error at its
respective error sensing means for the purpose of actively attenuate
acoustic disturbance in region remote from error sensor without the
need of having similar between the regions.

RE claim 28, the noise control system according to claims 25, But, the
combined teaching of Zhang et al. and Finn as a whole, or (Branislave)
fail to disclose of the wherein the multiple primary sensor means,
sound producing means and error sensing means form a group of
channels, and the multiple sound producing means are collectively
adjusted, under the control of a computing means, to produce a total
collective minimum error at the error sensing means. But, Popovich

disclose of a noise cancelling system wherein the multiple primary
sensor means, sound producing means and error sensing means form a
group of channels, and the multiple sound producing means are
collectively adjusted, under the control of a computing means, to
produce a total collective minimum error at the error sensing means
(fig.5; col.7 line 15-40; col.8 line 15-60; col.6 line 45-62/with each
being respectively adjusted and then summed from the output with
computer processor) for the purpose of actively attenuate acoustic
disturbance in region remote from error sensor without the need of
having similar between the regions. Thus, taking the (combined
teaching of Zhang et al. and Finn and Popovich as a whole, or even
(Branislav and Popovich as a whole), it would have been obvious for
one of the ordinary skill in the art to have modify the combined
teaching of Zhang et al. and Finn as a whole, Or Branislav, with the
noise cancelling system wherein the multiple primary sensor means,
sound producing means and error sensing means form a group of
channels, and the multiple sound producing means are collectively
adjusted, under the control of a computing means, to produce a total
collective minimum error at the error sensing means for the purpose of
actively attenuate acoustic disturbance in region remote from error
sensor without the need of having similar between the regions.

Re claim 29, the noise control system according to claim 28, wherein
the computing means uses an adjustment filter and a modified filtered

algorithm of the output signal indicative of the primary sound, either

off-line or momentarily on-line to align the channels and counteract

control system changes, thus facilitating a substantially

instantaneous adjustment of the secondary sound with respect to the

primary sound (col.8 line 5-25; fig.5/secondary sound is adjusted with

respect to primary sound (120,a,b)).

RE claim 30, the noise control system according to claim 29 with sound

producing source and filter adaptation for cancellation of primary

sound. But, the combined teaching of Zhang et al. and Finn and

Popovich as a whole, fail to disclose of the wherein a filter is

further used to reduce the minimum distance of the sound producing

means from the primary source at which the cancellation of predictable

primary sound is achieved. But, the concept of using a filter to

reduce the minimum distance of a secondary sound producing means from

the primary source is well known in the art. Thus, it would have been

obvious for one of the ordinary skill in the art to have modify the

the combined teaching of Zhang et al. and Finn and Popovich as a

whole, with the filter to reduce the minimum distance of a secondary

sound producing means from the primary source for maintaining the

stability of noise reduction dependent on the environmental change.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DISLER PAUL whose telephone number is (571)270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit 2615

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2615